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MORE POUNDS OF MEAT MORE POUNDS OF WOOL

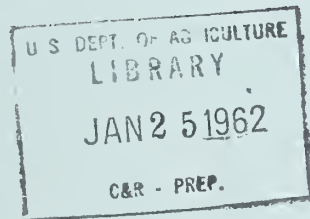
Reserve

A55.7
So3M

*Can be produced per acre
on range land
by following*

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PRACTICAL RANGE CONSERVATION METHODS



GOOD RANGE MANAGEMENT WILL
INSURE MAXIMUM FORAGE PRODUCTION
FOR FUTURE LIVESTOCK NEEDS

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UNITED STATES DEPARTMENT OF AGRICULTURE
RANGE CONSERVATION SERVICE REGION 7 PORTLAND, OREGON

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BETTER GRASS AND FORAGE MEANS MORE BEEF, MUTTON AND WOOL

CONSERVATION RANCHING AND FARMING WILL

Prevent wastage of valuable top soil

Produce higher returns per acre

Insure greater production

The most efficient production of beef and mutton can be obtained by following sound and practical range conservation methods. Livestock production on a conservation basis is necessary to prevent waste of forage and soil resources.

Conservation range management does not ordinarily require a sacrifice, but can be made to pay dollar and cents dividends. In addition the soil resources can be safeguarded for future production. The net return can be increased through improvement of range forage resulting in a greater poundage per animal. More pounds of meat and wool are produced per acre by following good management methods.

Notwithstanding the extensive improvement that has been accomplished on western ranges during recent years, there still is great need and opportunity to bring about further improvement. This can be done by restoring the density and vigor of desirable forage plants, which in turn will help capture and hold additional moisture on the land and help prevent further destructive erosion.

Assistance in the development of range conservation plans on privately owned lands, based upon maximum safe use, may be obtained from technicians of the Soil Conservation Service and from County Agents. Wherever feasible, a range plan to reduce soil losses, retard run-off and improve the forage is tied in with a conservation program for the entire ranch. When this is done, supplemental feed and water may frequently be developed to relieve the pressure upon overused portions of the grazing land.

Many operators are finding an advantage in developing their conservation plans cooperatively through the medium of a soil conservation district. A district is formed by vote of local land owners under terms of state enabling legislation and becomes a legally recognized sub-unit of state government. It embraces the sound principles of local initiative, local responsibility and local control. At the same time it provides a systematic means for calling upon Federal and State agencies for technical assistance.

There are four basic range management principles that cannot be neglected in any sound range conservation program. Ranchers who adopt and diligently follow these principles can put their operation on the safest possible basis.

To give livestock operators a handy reference guide to some of the major factors in developing a program of grazing land conservation management, the following technical information is outlined and discussed.

SHIFT OR ADJUST GRAZING USE TO MEET GROWTH REQUIREMENTS OF FORAGE

1. Graze your range only during the proper season of use. The season when you can secure the best yields of forage is influenced in an important way by altitude, by rainfall and by the kind of forage.
2. Especially avoid too early use of the range in order not to damage the soil or injure the newly started plants.
3. Avoid too late use to insure leaving enough grass over winter as a residue to form a litter or mulch which will reduce runoff, frost penetration and increase moisture absorption for next season's growth.
4. Plan the season of grazing use on the basis of the growth requirements of the desirable forage plants. Adherence to this procedure will give you more total forage because of greater storage of plant food in the roots of the plants and increased plant vigor.

It is probable that no part of the country derives greater benefits from correct seasonal grazing than the Western Pacific Region. Because of the wide variations in growing conditions on Western ranges (affected by variable elevations and climatic conditions), it is extremely important that grazing be limited to the season that is in harmony with plant growth.

Stock should be kept off the range in the spring until the key plants have reached a height of 4 to 6 inches and the ground is firm. In no instance, however, regardless of height of grasses, should stock be permitted on the range in the spring while the soil is still soft. Our range-land soils are particularly subject to injury by trampling immediately after the frost has left the ground, or during the spring rains. In addition to injury to plants, the soil can be so packed by trampling that moisture penetration is markedly decreased and soil and water losses by runoff greatly increased.

Studies have shown a particular disadvantage of too early spring grazing, namely: Only about 10 per cent of the potential yield ordinarily is produced 15 days after spring growth starts (when spring forage is 4 to 6 inches high), thirty-five per cent after 30 days, seventy-five per cent after 45 days and ninety per cent after 60 days. It is therefore exceedingly unprofitable to graze spring ranges before the new grass has reached 4 to 6 inches, or to stock too heavily before the grasses have attained a full rate of growth. Not only are the grasses set back by too early grazing, but the stock fail to make the desired gains, often in fact losing weight and condition rather than gaining. In such instances, additional supplemental feed should be provided, an expense that will be more than made up later by the additional range forage that will be produced. Thus avoid forage plants being stunted or set back because of overuse or too early grazing.

Grazing too long at the end of the season will cause livestock to lose weight or will remove so much of the vegetation that the soil will be poorly protected against erosion. In the instance of perennial grasses, prolonged grazing will not allow the plants to manufacture and store adequate food reserves for a vigorous start the following year.

At the close of the grazing season on perennial grass range at least 25 per cent of the seed stalks on the desirable plants should remain distributed over the area. There should also be enough vegetation on the ground to protect the soil from erosion and assist in securing maximum penetration of moisture into the soil. Good soil moisture penetration is highly important. This is not only necessary to provide moisture for plant growth the following year but also to maintain spring, pond and well water supplies for livestock.

The ungrazed portion of the forage remaining on the ground as plant residue not only reduces runoff and erosion and provides litter that prevents excessive frost penetration, but helps seed germination, and permits survival of a healthy stand of the desired species.



Excellent bunchgrass range - grazing deferred until early summer every third year allows the desirable grasses to yield a full crop every year.



Excellent bunchgrass range properly grazed. Under this grazing use, important desirable plants kept at optimum yield, this range will continue to produce top yields indefinitely. (picture taken at close of grazing season).



Excellent bunchgrass range. This range has the same plants as the two sites shown on the previous page, but is so closely grazed that the desirable plants will rapidly die out, and be replaced by brush and weeds if the close grazing indicated here is continued.



Poor condition bunchgrass range. Continued early spring use, and over grazing, has reduced this once valuable range to a point that it is yielding less than $1/5$ of the same range in excellent condition. Surface litter so important for maintenance of bunchgrasses at full vigor has blown and washed away. Erosion is active as indicated by the gravel and stones lying on the surface and the pedestalled clumps of bunchgrass.



Tragedy - This once high producing bunchgrass range, has lost all the good forage plants that formerly made up the cover. Rabbitbrush, matchweed, sagebrush, annual fescue grass and annual brome grasses now make up the cover. Sheet erosion is active. Litter or plant residue is absent. More than 20 acres are required to produce the amount of forage as shown on page 5.

DISTRIBUTE YOUR GRAZING SO AS TO OBTAIN AN EVEN HARVEST
OF ALL YOUR FORAGE

1. Develop and space stock water supplies so as to reduce travel to a minimum.
2. Follow a system of supplying salt at temporary and movable locations.
3. Build division and drift fences only when less expensive measures or practices will not give you desired distribution of grazing.
4. The distribution objective is always to lighten grazing use on the heavily used areas on your range or pasture and increase use on the underused portion.

Many ranchers in the West are losing valuable forage because of poor distribution of their stock upon their range or pasture. In a few cases, this poor distribution is unavoidable. Usually, however, it can be remedied by improved management. Better distribution permits the

operator to lighten the load on overused spots and place the whole range or pasture on a sustained-yield basis at a high production level.

The principal reasons for poor distribution are usually (1) inadequate or poorly spaced water supplies, (2) improper salting practices, (3) inadequate or poorly located fences, (4) rough topography, (5) improper herding practices.

One effective means of obtaining proper distribution on any range unit is by developing stock water where it is needed. Through the development of springs, seeps, ponds, or wells, enough water should be provided that cattle will not have to travel more than 2 miles on flat or rolling range, or more than 1/2 to 1 mile in areas of rough topography. In many instances a closer spacing of water supplies will show an immediate increase in forage yield and increased livestock gains. Whenever practicable, new developments should be located where grazing has been lightest but where grazing capacities are comparatively high.

Salt, if distributed according to a carefully worked out plan, also can be used effectively in obtaining more uniform grazing distribution. On the open range, salt never should be placed at permanent locations or at water holes, but should be placed on open ridge tops, accessible rocky areas, terraces, or other areas not highly susceptible to erosion. When planned salt stations are used for stock distribution purposes, care should be taken to locate the salt grounds upon or as close to the formerly underused range as possible. See to it that animals find the salt immediately.

Inadequate or poorly located fences also may contribute to poor distribution. Excessive use of overgrazed range around open water can be controlled by fencing these watering places and closing them to use when it is desired to shift grazing to other parts of the pasture or range.

Nothing of course can be done to correct rough topography. Increased safe and productive grazing use of these areas can be obtained through judicious location of water and salt and by carefully planned fencing, riding and herding.

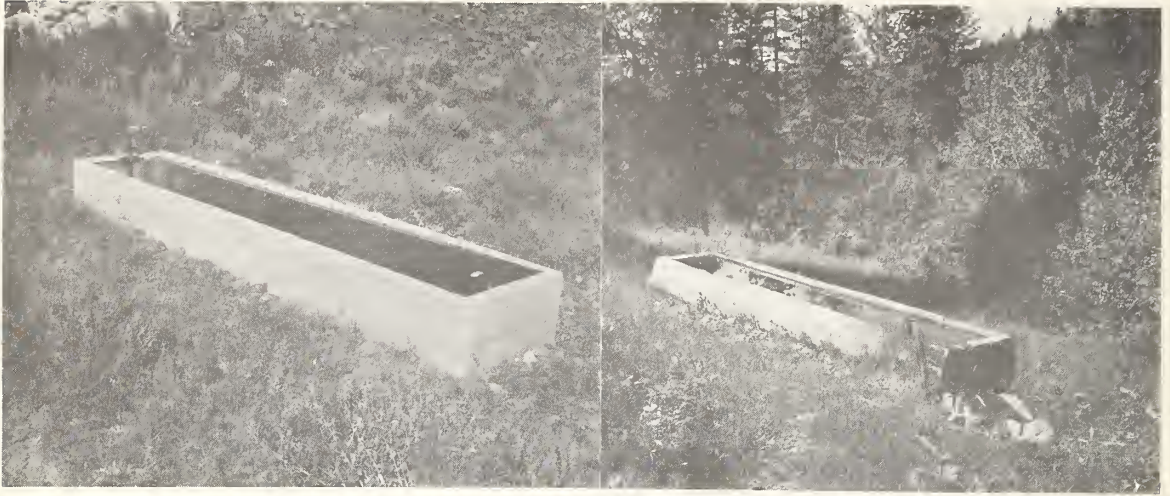
Sheep should be herded away from areas which have been subjected to heavy use and should not, as a practice, be salted or allowed to bed down or shade up in the vicinity of water or on stock trails.

WELL PLACED SALT STATION AND CAREFULLY LOCATED WATER SUPPLIES
ARE IMPORTANT AIDS TO THE RANCHER IN SECURING
EVEN GRAZING USE OF ALL PARTS OF THE RANGE



Movable salt boxes enable the rancher to shift them from time to time and thus "toll" the stock to portions of the range that they customarily neglect or use only lightly. Block salt is used by many ranchers in preference to rough ground salt. Salt blocks should be placed in boxes or upon short iron pipes or stakes, and thrown on the ground.

CAREFULLY LOCATED WATER SUPPLIES REDUCE TRAVEL AND TRAILING BY LIVESTOCK, A FACTOR THAT IS FREQUENTLY DETRIMENTAL TO BOTH THE FORAGE COVER AND THE ANIMALS



Inexpensive watering troughs piped from slow-flowing springs to portions of the range formerly without water greatly increased the value of these ranges.



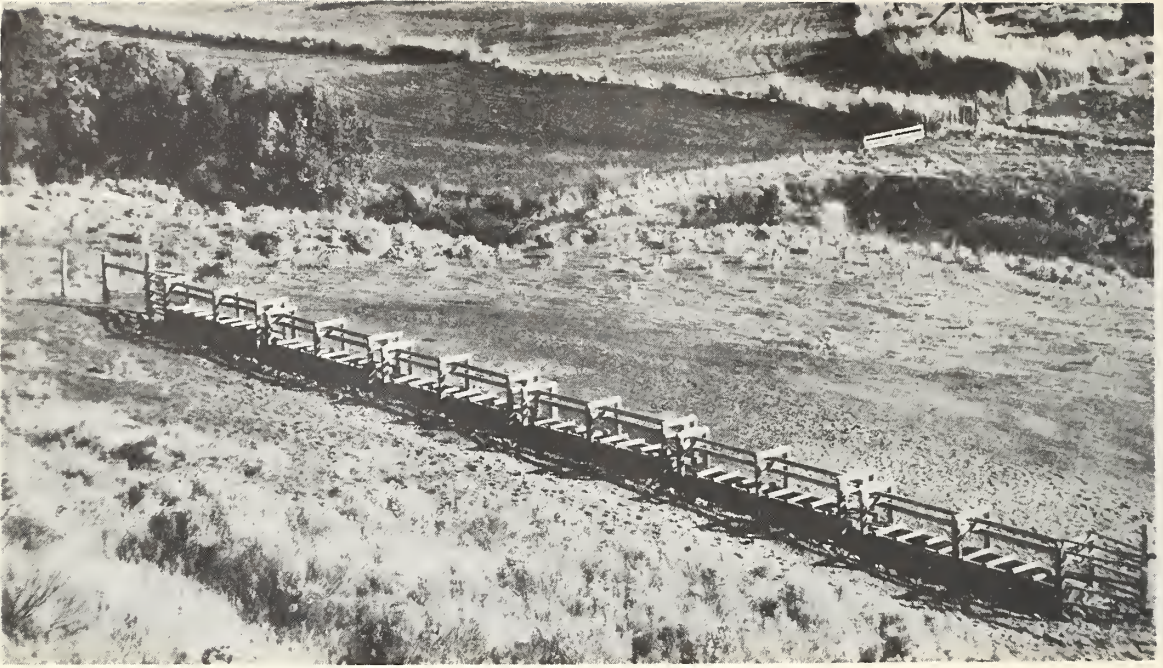
Water holes like the above, even though water is available only seasonally, aid materially in maintaining even grazing use, reducing trailing, and increasing daily gains.



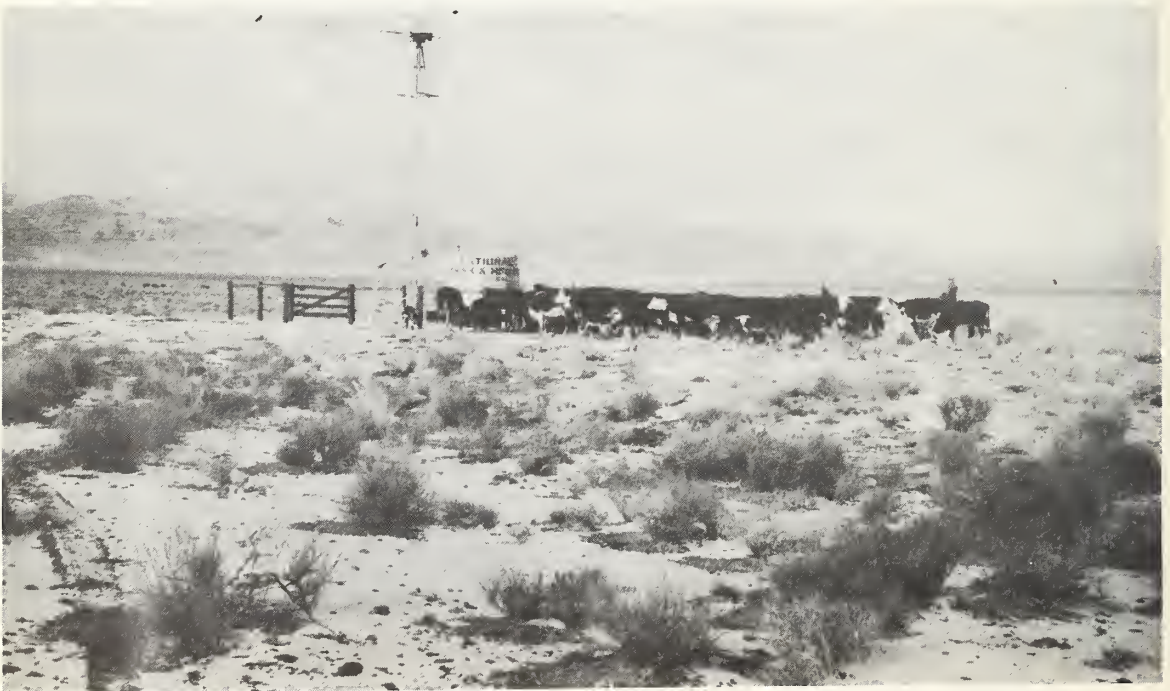
Inexpensive ponds developed on the higher, little used portion of this range permitted not only fatter cattle but allowed over-used range in the vicinity of lower lying springs to recover and yield twice its former amount of forage.



This pond was fenced to exclude livestock from the reservoir, permitting not only a more wholesome water supply, but prevented stock from damaging the dam and spillway. Water was piped from the reservoir to a cement tank with automatically controlled float valve 500 feet below and to one side of the dam.



This home-made watering trough successfully waters a thousand-head band of sheep every other day. It is piped to a slow-flowing spring but no storage tank is required, and the band can quickly drink and resume grazing.



This deep-well, windmill storage tank and watering trough, located 5 miles from a spring, permits the cattle not only to reduce travel to and from water but also permits the over-grazed range in the vicinity of the spring to recover.



Steep, rough or broken topography are important factors to consider in grazing management. The location of salt, water and fences need very careful study on range of this character to secure good distribution of the grazing use of all parts of the range.

RUN THE KIND OF STOCK BEST SUITED TO YOUR PARTICULAR FORAGE

1. Different classes of livestock have widely different preference for the several different plants commonly found on the range or dry land pasture.
2. Graze the class of livestock that will use your range most profitably.
3. Graze sheep on range forage that is predominantly browse, weeds, and the finer grasses - on the rougher lands.
4. Graze cattle on the smooth to rolling range lands where the coarser grasses, sedges, and the larger, woody grazable woody plants predominate.

Extensive range areas are not producing their maximum potential income because they are not grazed by the kind of stock for which the forage or topography is best suited. Where adequate markets exist for the disposal of both sheep and cattle, sheep should be run on ranges where the finer grasses, weeds or the shorter browse species predominate. The cattle should be kept where the coarser bunchgrasses prevail and where weeds and the shorter browse are not particularly abundant.

Where the topography is particularly rough or water supplies are inadequate, it may be necessary to graze sheep even though the principal forage plants are better suited to cattle. In situations of this kind special care should be exercised to base rate of stocking and season of use on plants found to be actually grazed by sheep.

On range suited to both sheep and cattle because of a mixture of the forage plants preferred by each class of stock, the best use can be made of available vegetation by grazing in alternate years by cattle and sheep. In circumstances where it is necessary to run both kinds of stock at the same time, the rancher should use extreme care and vigilance not to overgraze the range but to remove each kind of livestock when the key species for that kind of stock have been properly utilized.

Sheep can be forced to a considerable extent to eat forage better suited to cattle, or cattle can be forced to eat sheep forage. However, this practice long continued will finally and definitely result in the destruction of the preferred plants and the gradual deterioration of the range. On the other hand, stocking with the kind of stock for which the vegetation is best suited will permit maximum utilization of available feed. Over a long period of time with the right kind of stock, a higher, more stable forage yield results.

ON WHICH SIDE OF THE FENCE IS YOUR RANCH



On the Left - Too early grazing and continued heavy grazing have killed out the valuable bunch, wheatgrasses, fescues and bluegrasses, that constituted the principal part of the forage. They have been replaced by annual cheatgrass, rabbitbrush and sagebrush. 4 acres are required to feed a cow one month.

On the Right - proper season of use and moderate stocking have maintained the desirable grasses; no cheat, rabbitbrush or sagebrush have invaded. 1 acre is required to feed a cow one month.



On the Left - stocking with sheep have killed out the brush.
It will support 1 cow or 5 sheep per acre.

On the Right - overstocking with cattle has weakened the grasses
and allowed brush to rapidly invade. 5 acres are required for
1 cow month or 3 acres for 5 sheep for one month.

Both of these ranches would profit by switching cattle to the
left of the fence and sheep to the ranch on the right every
other year. Both ranges would improve in quality and
productiveness under such an arrangement.



This excellent bunchgrass range has been properly grazed.
(picture taken at close of grazing season).



This formerly excellent bunchgrass range has deteriorated because of several years' overgrazing. The understory grasses have been killed out, sagebrush is invading, many of the bunchgrass clumps are "sick" or dead, the top soil is washing (picture taken at close of grazing season). The degree of use is proper in this instance to insure recovery of the desirable grasses, and permit the litter and plant residues to again develop a ground cover.



This former bunchgrass range is badly depleted because of years of overstocking. Bunchgrasses are practically all killed out, sagebrush and annual grasses have invaded and taken the place of the former desirable forage plants. Erosion in an advanced stage is evident from the pedestalled soil around some of the plants and the elevated crowns of other plants.

ADJUST SEASONALLY THE NUMBERS OF LIVESTOCK TO
CONFORM WITH PLANT GROWTH

1. Adjust annually the numbers of livestock to conform with your estimated total feed; adjust seasonally the numbers of livestock to the seasonal range yield of grazing units.
2. Base the correct number of livestock to be grazed upon an initial forage inventory.
3. Adjust the number of livestock subsequently to the initial forage inventory by seasonally checking the use of the range.

No pasture or other range unit will yield its maximum potential income if continually stocked at a rate in excess of sustained grazing capacity. Continued close grazing of the forage invariably results in a decrease of the more valuable forage plants and their partial or complete replacement by other plants of a lower value, including weeds. With this decline of plant cover, erosion and runoff become a more serious problem as the result of overstocking.

The loss of water by runoff, and the washing away of topsoil, deprives the remaining plants of their necessary food. This tends to speed up the rate of range deterioration. The loss of water by runoff also results in a decrease of ground water for wells and springs, further reducing the value of the range.

The stocking of each range unit should be based on a careful inventory of the forage resources. The rate of stocking then should be adjusted annually or as often as necessary on the basis of periodic forage use checks to provide for fluctuations in the amount of forage produced.

In only a few cases will the reduction of livestock numbers in accordance with plant growth requirements involve a reduction of high producing animals. On most ranches the correct number can be reached

by culling of low-producing or poor quality stock that do not utilize their share of the range profitably. On the other hand, where grazing lands have been severely overgrazed for many years, it may be necessary to reduce stock numbers drastically or even close the unit to all grazing to bring about the desired restoration of the better forage plants.

A 12-POINT RANGE CONSERVATION PROGRAM FOR THE WESTERN RANGE STATES

Twelve time-tested practices are listed below that experience has shown, when correctly applied, meet the more important range-conservation problems on Western range lands. Every rancher who wishes to place his operation on a stable, long-time basis and to be assured year after year of the best production of range forage and livestock gains, should adopt these practices.

1. Adjust number of animals so as to stock the range to graze the proper amount of forage and no more.
2. Remove stock at the close of the grazing season when 25 to 30 per cent of the seed stalks still remain on key grasses.
3. Graze the class of stock (cattle or sheep) for which the range and forage is best suited.
4. Keep stock off the range in the spring until the ground is firm enough to withstand trampling and until bunch-grasses and plants of similar growth habits have reached 4" to 6" of height.
5. Raise or otherwise provide adequate supplemental feed to eliminate the need for grazing range lands too early in the spring.
6. Defer use of spring range every other year, and, by rotation grazing, rest about one-fifth of the range every year throughout the growing season.

7. Salt at temporary salt grounds on the more lightly grazed parts of the range. Do not have permanent salt stations on the range.
8. Build carefully planned fences to help distribute stock.
9. Locate and develop enough water to prevent excessive travel and trailing.
10. Cull and sell low-producing animals, when reducing the grazing load.
11. Herd sheep quietly in open bands.
12. Move sheep camps frequently during the grazing season, using a given bedground for no more than three successive nights.

Regional Office
Soil Conservation Service
Portland, Oregon
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